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Hospital waiting time: the forgotten premise of healthcare service delivery?

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Abstract

Purpose – This is a national study which aims to determine the average waiting time in Malaysian public hospitals and to gauge the level of patient satisfaction with the waiting time. It also aims to identify factors perceived by healthcare providers which contribute to the waiting time problem.

Design/methodology/approach – Self-administered questionnaires were the main method of data collection. Two sets of questionnaires were used. The first set solicited information from patients on their waiting time expereince. The second set elucidated information from hospital employees on the possible causes of lengthy waiting time. The questionnaires were administered in 21 public hospitals throughout all 13 states in Malaysia. A total of 13,000 responses were analysed for the patient survey and almost 3,000 were analysed for the employee survey.

Findings – The findings indicate that on average, patients wait for more than two hours from registration to getting the prescription slip, while the contact time with medical personnel is only on average 15 minutes. Employee surveys on factors contributing to the lengthy waiting time indicate employee attitude and work process, heavy workload, management and supervision problems, and inadequate facilities to be among the contributory factors to the waiting time problem.

Social implications – Public healthcare in Malaysia is in a state of "excess demand", where demand for subsidised healthcare far outstrips supply, due to the large fee differential between public and private healthcare services. There is a need for hospital managers to reduce the boredom faced by patients while waiting, and to address the waiting time problem in a more scientific manner, as has been carried out in other countries through simulation and modelling techniques.

Originality/value – Healthcare organisations are keen to address their waiting time problem. However, not much research has been carried out in this area. The study thus fills the lacuna in waiting time studies in healthcare organisations.

Keywords Waiting time, Public hospitals, Public healthcare, Customer satisfaction, Queuing, Health care, Malaysia

Paper type Research paper

Introduction

Hospital administrators and policy-makers are becoming more and more concerned with outpatient waiting time because it is a measure of organisational efficiency (Kujala *et al.* (2006); Cayirli *et al.* (2008); Zhu *et al.* (2009). Waiting for treatment can be a frustrating given that time is unproductively spent and according to Katzman (1999) people are impatient and do not want to wait to be seen. The literature on service quality indicates that waiting experiences are typically negative and have been shown to affect overall satisfaction of consumers with the service encounter (Barlow, 2002;

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Bielen and Demoulin, 2007), however, it must be borne in mind that people hold differing perceptions. According to Steers and Black (1994), perception is usually guided by beliefs, where norms and values predominate. For some people, half an hour is a long time, but some are willing to wait for two hours without feeling restless. This relative aspect of waiting time has prompted researches such as Naumann and Miles (2001) to suggest that hospital managers should identify methods by which patients can be occupied and to provide such activities. It is fair to argue that the most difficult waiting period for a patient is the waiting time for a pre-arranged appointment (Barlow, 2002). The phenomenon is no doubt widespread, and hospitals are keen to ensure patients are not waiting unnecessarily to avail of consultation. There is a dearth of research on hospital waiting times with very few studies focussing on methods to improve the situation.

Literature review

Waiting time in outpatient clinics has been documented to be a source of dissatisfaction among patients (Uehira and Kay, 2009; Bielen and Demoulin, 2007; Kujala *et al.*, 2006; Barlow, 2002; Hart, 1996; Gupta *et al.*, 1993; McKinnon *et al.*, 1998). Hart (1996) argues that this is the one consistent feature of dissatisfaction that has been expressed with outpatient service. Efficiency and effectiveness of outpatient services have many dimensions, but an important aspect is excessive waiting time, which is a major complaint of patients (Clague *et al.*, 1997). Extra waiting time is also non-value adding time because during this period, resources are not used to improve patients' medical condition (Kujala *et al.*, 2006). Barlow (2002) argues that excessive waiting time is a lose-lose strategy in that patients lose valuable time; hospitals lose their patients and reputation and staff experience tension and stress. Bielen and Demoulin (2007) further contend that waiting time does not only affect the service-satisfaction relationship, but also moderates on the satisfaction-loyalty relationship. They also found that determinants of waiting time satisfaction include the perceived waiting time, satisfaction with information provided in case of delays, and satisfaction with the waiting environment. Thus, Becker and Douglass (2008) further suggest that the attractiveness of the physical environment of healthcare facilities can have an impact on the patients' perception of waiting times. McKinnon *et al.* (1998) found that patients are less likely to be dissatisfied if their waiting time is within 30 minutes. Meeting the 30-minute threshold is a daunting task, particularly for public hospitals where there is excess demand. As noted by Barlow (2002), the inevitability of demand exceeding capacity causes the queue, and this is difficult to accept, either as a patient, or as an observer. Research in the area of services marketing has shown that customers who occupy their time while waiting enjoy higher levels of satisfaction compared to those who remain idle (Taylor, 1994) with Naumann and Miles (2001) indicating that patients who were occupied during waiting times had higher perception of satisfaction.

Overcrowding in the outpatient departments and specialist clinics of Malaysian public hospitals is not an unusual phenomenon with Manaf (2006) reporting being overwhelmed by the number of patients in the outpatient clinics of Malaysian public hospitals. This service is provided almost free at the point of delivery. A huge differential exists between public and private hospitals whereas private hospitals may charge more than ten times the fee of public hospitals and can be one of the push

factors for patients to attend public hospitals. Moreover, the demography of the public hospitals whereby it caters largely to the lower income earners and public servants also contributes to the overcrowding in Malaysian public hospitals. Equity of access to health care is clearly stated in the vision statement of the Ministry of Health, which implies that everyone should have a fair opportunity to attain their full health potential, and no one should be deprived from achieving this potential (Suleiman and Jegathesan, 2000). The Malaysian government has followed a policy of favouring the lower income group since the 1970s, and heavily subsidise the public health care system. Consequently, those with lower economic status form the major portion of outpatients of the public hospitals (Manaf, 2006).

While increased waiting time is a problem in Malaysia the phenomenon is worldwide. A five-country hospital survey by Blendon *et al.* (2004) found that Canada, Britain and the USA reported average waits of two hours or more. In Hong Kong public hospitals, Aharonson-Daniel *et al.* (1996) found that the longest time that patients spent at the clinic was in waiting for consultation where 82 per cent of total visit time is spent in the waiting room. In Britain, the official and publicised waiting times according to the Patient's Charter is 30 minutes, although the reality may be quite different. On many occasions, the strain of waiting for long periods has even led to verbal aggression by patients towards the nurses or clinic receptionists (Bolton, 2002).

In Malaysian public hospitals, work carried out by Manaf (2006) indicated a positive correlation between satisfaction with waiting time and outpatient satisfaction. While research has established the relationship between patient satisfaction and length of waiting time, Ittig (2002) contends that when customers are external, waiting time has an effect that is similar to that of a price. This means that customers become aware of the price demanded in money and in time, and adjust their behaviour accordingly. Thus, even in cases where there is monopoly control over customers as with hospital emergency room, there may be adjustment of behaviour such as long delays causing patients to consider an outpatient facility or private practitioner in the future. A number of factors have been cited to contribute to lengthy waiting time. Health professionals work in a hospital system that is paralysed by volume, undermined by staff shortage and flawed by aging equipment (O'Brien-Bell, 2005). Further, according to Garber (2004), long and complicated work processes and unnecessary duplication of tests can prolong waiting time in clinics. In Britain, inefficiencies in outpatient clinics have also been blamed on consultant practices of patient "recycling" which reduce the ability to see new patients (Amstrong and Nicoll, 1995). This has led researchers such as Clague *et al.* (1997) to suggest operational research solution by using computer simulation to improve the efficiency of clinic waiting time. The quantitative approach to waiting time has also been echoed by Siddhartan *et al.* (1996); Kaandorp and Koole (2007); Zhu *et al.* (2009) who suggested a queuing model to reduce waiting times in emergency department by classifying patients into four categories, from major trauma to non-emergency or primary care patients. Aharonson-Daniel *et al.* (1996) suggested the use of computer simulation in the management of queues in outpatient departments in Hong Kong public hospitals. As in Malaysian public hospitals, those in Hong Kong are also burdened with excessive waiting time due to the inexpensive treatment provided by these hospitals in comparison to the private hospitals. Qualitative research undertaken on hospital waiting time (Uehira and Kay, 2009) on Japanese hospitals interestingly identify three types of patients:

(1) one who visits hospital infrequently and is uneasy there;
(2) one who visits hospital fairly often and is irritated by long waiting time; and
(3) one who visits hospital extremely often and is often bored.

Thus, the purpose of this study was to determine the waiting time in Malaysian public hospitals and to formulate strategies to improve the management of waiting time. It is part of a national study that is carried out to track waiting time of Malaysian public hospitals. The last study was carried out in 2005, thus, the current study will allow policy-makers to ascertain if improvements have been made. The objectives of the study were to determine the average waiting time in Malaysian public hospitals, and to gauge the level of satisfaction of patients in regard to waiting times. The study also attempts to identify factors perceived by health care providers as contributory to the long waiting time, and formulate and recommend new strategies to improve the management of waiting time. The study also provides valuable information to the policy-makers on the management of waiting time in Malaysian public hospitals.

The context

Malaysian public hospitals are organised into national level, state level and district level. National level hospitals provide a comprehensive range of tertiary care services, such as Hospital Kuala Lumpur (HKL), which serves as the National Referral Centre. State level hospitals, with one each located in the capital of all 13 states in the country; provide a comprehensive range of secondary services. The district level hospitals on the other hand provide basic inpatient care services, and those with resident specialists also provide some specialty services.

Methodology

The study carried out was a cross-sectional study involving 21 public hospitals from all 13 states in the country. The respondent hospitals were randomly selected from a total of 121 public hospitals. Of the 21 respondent hospitals selected, six were state level hospitals, six were district level hospitals with resident specialists, and eight were district hospitals without specialists. Hospital Kuala Lumpur, which serves as the national referral centre, was included as it is the only national referral hospital under the Ministry of Health. However a large dissimilarity exists between the respondent hospitals, particularly Hospital Kuala Lumpur and the smaller district hospitals in the country. Hospital Alor Gajah, for example, which is among the respondent hospital, is a district hospital with 29 beds with Hospital Kuala Lumpur, on the other hand, a mammoth structure with 2,331 beds (MoH, 2006). It is among the largest hospitals in the Asian region, with an outpatient attendance that reaches almost 5,000 daily (MoH, 2006).

The questionnaires were administered in seven departments, namely Outpatient Department (OPD), Emergency Department, Medical, Surgery, Orthopaedic, Obstetrics and Gynaecology (O & G), and Paediatric clinics. For district hospitals without specialists, the questionnaires were administered in the Outpatient Department and Emergency Department.

Two sets of questionnaires were developed for the study. The first set gathered information on the waiting time they experienced. This was categorised as:

- T1, i.e. the time taken from the given appointment time until the patient was seen by a medical personnel;
- T2, i.e. the time taken from registration until the patient was seen by a medical personnel; and
- T3, i.e. the time taken from registration until the patient received the prescription slip from a medical personnel.

The patient questionnaire also sought information on their level of satisfaction with waiting times, the level of boredom experienced while waiting and whether they were satisfied with the service provided by the staff during throughout the waiting period.

The second questionnaire gathered information from the employees on the possible causes of waiting time and addressed items relating to excessive work demand, work processes, staff attitude, facilities, and management. Reliability and validity analyses were carried out on the instrument that provided invaluable insight into the perception of the employees themselves with regard to patient waiting time. Both sets of questionnaires used in the study were based on those developed for an earlier study conducted in 2005, however, some modifications to the instruments were made in the present study based on the earlier findings.

A total of 200 patients were selected from each clinic. The sample size was calculated by using EPI INFO Version 6, taking into consideration 20 per cent precision and 10 per cent non-response from patients. Statistical analysis was carried out by SPSS version 13. Overall, 21,750 questionnaires were distributed and 13,463 patients responded, which gave a response rate of 62.9 per cent. For the staff questionnaire, 2,820 questionnaires were distributed, and of these 1,920 responses were returned giving a response rate of 68.2 per cent.

Analyses on patient survey

The demography of the respondents showed that more than 60 per cent of the respondents were less than 39 years old. There were more female respondents (57.5 per cent) compared to male (42.5 per cent). The composition of the respondents according to ethnicity were Malays (66.2 per cent), Others (17.1 per cent), Chinese (11.6 per cent), Indians (5.1 per cent). The high percentage of those categorised as "Others" can be as a result of the survey being carried out in the states of Sabah and Sarawak of East Malaysia, where the majority of the population are indigenous *"bumiputra"*, rather than Malay, Chinese or Indian. The higher percentage of Malay respondents is reflective of the patient population attending Malaysian public hospitals (Manaf, 2006). This is partly due to the fact that the Malaysian public healthcare system as outlined earlier provides services to the lower income bracket of the population and those serving in the public sector with both groups significantly representing Malays.

The majority of the respondents (73.7 per cent) also had at least secondary school education (minimum 12 years of formal schooling). Table I shows the details of the sample demography.

The finding also indicates that the average waiting time to get treatment from appointment time (T1) for different type of clinics ranges from 18 minutes to 85 minutes. The Emergency Department had the shortest waiting time (18 minutes) while the Medical Department experienced the longest delay (85 minutes). The average waiting time for a patient to receive treatment from appointment time for the

	Frequency	%
Age group		
Less than 39	8,442	64.6
40-55	3,255	24.9
56 and above	1,374	10.5
Gender		
Male	5,659	42.5
Female	7,666	
Ethnicity		
Malay	8,826	66.2
Chinese	1,542	11.6
India	687	5.1
Others	2,274	17.1
Education level		
None	1,060	8.2
Informal school	260	2.0
Primary school	2,092	16.1
Secondary school	7,326	56.5
College/University	2,235	17.2

Table I.
Age group, ethnicity, gender, and education level

differing hospitals was lowest at District Hospitals without specialists (38 minutes) and highest at HKL and District Hospitals with Specialists (60 minutes). See Table II and Table III.

Table II also shows that waiting time for T2, i.e. the time taken from registration until a patient is seen by a medical personnel, is longest for Medical Clinics (85 minutes) and shortest for Emergency Department (18 minutes). When analysed according to the type of hospital, as shown in Table III, the average waiting time to get treatment from registration (T2) was longest at Kuala Lumpur Hospital (75 minutes); and shortest at District Hospitals without Specialists (30 minutes). Of the respondents, 21 per cent indicated that the waiting time experienced was unreasonable, while almost 80 per cent reporting that the waiting time was acceptable (Figure 1).

Clinic	T1[a]	Median (IQR)	T2[b]	Median (IQR)	T3[c]	Median (IQR)
OPD	60.00	30,90	60.00	30,90	97.00	64,150
Emergency dept	18.00	10,30	18.00	10,30	48.00	25,70
Medical	85.00	45,135	85.00	45,135	145.00	98,200
Surgery	60.00	35,95	60.00	35,95	129.00	88,165
Orthopedic	81.00	45,120	81.00	45,120	135.00	90,185
O&G	75.00	45,110	75.00	45,110	135.00	95,180
Paediatric	65.00	35,102	65.00	35,102	120.00	90,170

Note: [a]T1 is average waiting time to get treatment from appointment time; [b]T2 is average waiting time to get treatment from registration; [c]T3 is average waiting time to get prescription slip from registration

Table II.
Average waiting time to get treatment by types of clinic

Waiting time for T3, which is the time taken from registration until receipt of a prescription slip, was the shortest in the Emergency Department (48 minutes) with the Medical Clinic experiencing the longest delay (145 minutes) (Table II). Of interest, T3 waiting times was less (60 minutes) at District Hospitals without Specialists than at Kuala Lumpur Hospital (120 minutes).

While waiting time appears to be lengthy, the contact time with health personnel lasts on average (10 to 15 minutes), with the exception of the O & G clinic, where the average contact time is (20 minutes). Contact time applied to hospitals is lowest at District Hospitals without Specialists (eight minutes) while Kuala Lumpur Hospital and State Hospitals register an average contact time (15 minutes; Table IV and V).

Hospital	T1[a]	Median (IQR)	T2[b]	Median (IQR)	T3[c]	Median (IQR)
Kuala Lumpur hospital	60.00	30,105	75.00	45,120	130.00	93,180
State hospital	50.00	20,90	60.00	30,100	128.00	89,180
District hospitals with specialists	60.00	30,105	70.00	30,110	125.00	75,175
District hospitals without specialists	38.00	10,90	30.00	10,75	60.00	26,116

Table III.
Average waiting time to get treatment by types of hospital

Note: [a]T1 is average waiting time to get treatment from appointment time; [b]T2 is average waiting time to get treatment from registration; [c]T3 is average waiting time to get prescription slip from registration

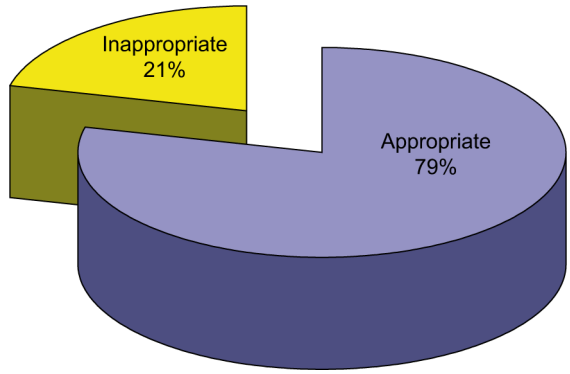

Figure 1.
Appropriateness of waiting time

Clinic	Contact time	Median (IQR)
OPD	10.00	5,15
Emergency dept	10.00	5,15
Medical	15.00	10,20
Surgery	13.00	8,20
Orthopedic	15.00	10,25
O&G	20.00	11,37
Paediatric	15.00	10,25

Table IV.
Average contact time with healthcare personnel according to clinic

Although waiting time appears to be very lengthy for medical consultation the actual waiting time to receive medicine is much more reasonable. It takes on average six minutes to receive medical attention at District Hospitals without Specialists and 26 minutes at the State Hospital (Table VI).

Almost 50 per cent of respondents reported feeling bored while waiting for consultation (Table VII) with suggestions received to relive the boredom outlined in Table VIII.

Although the waiting time appeared long with an average of one hour for state hospitals and in excess of an hour for Kuala Lumpur Hospital and District Hospitals

Hospital	Contact time	Median (IQR)
Kuala Lumpur hospital	15.00	10,25
State hospital	15.00	10,25
District hospitals with specialists	13.00	10,23
District hospitals without specialists	8.00	5,13

Table V. Average contact time according to types of hospital

Hospital	Waiting time	Median (IQR)
Kuala Lumpur hospital	15.00	6,25
State hospital	26.00	15,50
District hospital with specialist	20.00	10,30
District hospital without specialist	6.00	4,15

Table VI. Average waiting time to get medicine by types of hospital

	Frequency	%
Strongly agree	1,430	12.1
Agree	4,217	35.6
Not sure	2,553	21.5
Disagree	2,868	24.2
Strongly disagree	793	6.7
Total	11,861	100

Table VII. Perception of boredom while waiting

Patient's suggestion	%
Provision of reading materials	90.8
Provision of television	90.8
Provision of newspaper	87.3
Provision of appealling waiting environment	80.8
Provision of information on the digital board	79.8
Provision of customer relation officer	75.8
Provision of garden/fish pond in the waiting environment	69.7
Provision of music in the waiting environment	54.5
Provision of cafeteria, garden or other places	49.6

Table VIII. Patient's suggestion to reduce boredom

with Specialists, nonetheless, the majority of patients reported being satisfied with the waiting time as outlined in Table IX. Just 23.5 per cent of respondents reported dissatisfaction with waiting times in Kuala Lumpur Hospital, which is surprising given the lengthy waiting time that the patients had to endure. One explanation could be that these patients have low expectations as Manaf (2006) pointed out that the majority of patients in Malaysian public hospitals are low income earners who are aware that they are paying nominal or receiving almost free service in comparison to those patients receiving care in private hospital services.

Analyses on employee survey

A total of 19 items relating to domains such as work efficiency, attitude problems, supervision problems, late start of clinics, inadequate facilities were contained in the employee survey. In assessing the internal consistency of the items, the Cronbach's coefficient alpha was employed. According to Hair *et al.* (1998), a coefficient of over 0.90 would be acceptable to any instrument, and the generally agreed upon lower limit is 0.70. The Cronbach's alpha for the 19 items were found to be 0.8880. The corrected item-total correlation was also found to exceed the acceptable limit of 0.30 (Nunnally and Bernstein, 1994), except for two items on lack of staff and patients not adhering to appointment time as possible causes of delay in waiting time. However, since the increase in alpha value was marginal if these items were deleted, therefore they were retained for further analyses. Table X shows the items, corrected item-total correlation and alpha-if-item-deleted for all 19 items.

Factor analysis was also conducted on all 19 items with principal component analysis as the extraction method and Varimax with Kaiser normalisation as the rotation method. The factor analysis resulted in four factors, which accounted for 58 per cent of total variance. According to Hair *et al.* (1998), it is not uncommon to consider a solution that accounts for 60 per cent (and sometimes less) of the total variance in the social sciences. Interpreting the factor solution, the minimum acceptable level of significance of 0.30 was applied to the factor loading.

Reliability analysis was further carried out on the four extracted factors. An alpha level of 0.70 was applied to represent the presence of a good internal consistency among the items, and an item-total correlation of not less than 0.30 was applied for the item analysis. The Cronbach's alpha for factors 1, 2 and 3 was found to exceed 0.70; and the item-total correlation of all items in these factors exceeded the acceptable lower limit of 0.30. This indicates that these factors have a good internal consistency. However, Cronbach's alpha for factor 4 was found to be less than 0.70, i.e. 0.6960. Cronbach's alpha has a positive relationship to the number of items in a scale, i.e. increasing the number of items, even with the same degree of intercorrelation, would

Table IX.
Patient satisfaction with waiting time by type of hospital

	No. of patients							
Hospital	Satisfied	%	Not sure	%	Dissatisfied	%	Total	%
Kuala Lumpur hospital	451	62.4	102	14.1	170	23.5	723	100
State hospital	2,450	63.6	609	15.8	796	20.6	3,855	100
District hospital with specialist	3,601	69.3	790	15.2	804	15.5	5,195	100
District hospital without specialist	876	66.1	174	13.1	276	20.8	1,326	100

Item		Corrected item-total correlation	Cronbach's alpha if item deleted
S1	Heavy workload	0.353	0.887
S2	Lack of staff including doctors	0.261	0.889
S3	Performing other non-related duties	0.501	0.883
S4	Patients do not adhere to appointment time	0.267	0.889
S5	Too many forms to be filled in	0.426	0.885
S6	Patient card could not be traced	0.464	0.884
S7	Inefficient work process	0.625	0.879
S8	Lack of cooperation among staff	0.691	0.876
S9	Lack of motivation among employees	0.712	0.876
S10	Lack of commitment among employees	0.715	0.875
S11	Lack of expertise in delivering work	0.691	0.876
S12	Poor work attitude of colleagues, e.g. conflict	0.671	0.877
S13	Crowded waiting lounge	0.355	0.888
S14	Not enough consultation rooms	0.399	0.886
S15	Doctor starts clinic late	0.417	0.886
S16	Staff having rest hour at the same time	0.550	0.881
S17	Lack of supervision	0.614	0.879
S18	Management slow in solving problems	0.546	0.881
S19	Use of computer in registration and checking	0.342	0.888

Table X.
Reliability analysis on staff survey

increase the reliability value of a scale (Hair *et al.*, 1998). Thus, since there are only two items in this factor, this could have attributed to the lowered alpha value. Hair *et al.* (1998) also noted that the generally agreed lower limit for Cronbach's alpha for an exploratory research might decrease to 0.60. Since this is an exploratory study, and that this factor is deemed important, it was retained for further analysis. Furthermore, both items in this factor exceeded the acceptable lower limit of 0.30 for corrected item-total correlation (Table XI).

Interpreting the results labels were assigned to the extracted factors. The first factor was labelled "employee attitude and work process" and consisted of six items: lack of motivation among employees, lack of commitment among employees, lack of expertise in delivering work. The second factor was labelled "heavy workload" consisting of: lack of staff and heavy workload. The third factor, which had items: lack of supervision and "doctor starts clinic late" was labelled "management and supervision problems". The fourth factor comprised two factors: not enough consultation rooms and crowded waiting lounge was labeled "inadequate facilities".

Mean analysis was carried out on all four factors and was performed by adding up and averaging the score of all items grouped in each factor. A mean that is greater than 3.0 indicates that the factor does have an influence on patients' waiting time, while a mean that is less than 3.0 indicates otherwise. A mean that is greater than 4.0 indicates that the employees perceive the factor to strongly influence patients' waiting time.

Employee attitude and work process

The factor analysis carried out grouped six items listed in Table XII as a measure on the perception of influence of employee attitude and work process on patients' waiting time. All the six items were collapsed to form a single variable for the factor on

Factor	Items	Factor loading
1	Lack of commitment among employees	0.888
	Lack of motivation among employees	0.875
	Lack of expertise in delivering work	0.835
	Lack of cooperation among staff	0.798
	Poor work attitude of colleagues, e.g. conflict	0.752
	Inefficient work process	0.594
	Eigenvalue	6.596
	Percentage of variance	24.166
	Cumulative percentage of variance	24.166
2	Lack of staff including doctors	0.691
	Patients do not adhere to appointment time	0.631
	Too many forms to be filled in	0.624
	Heavy workload	0.601
	Performing other non-related duties	0.598
	Patient card could not be traced	0.566
	Eigenvalue	2.065
	Percentage of variance	13.520
	Cumulative percentage of variance	37.686
3	Doctor starts clinic late	0.672
	Management slow in solving problems	0.631
	Lack of supervision	0.567
	Staff having rest hour at the same time	0.542
	Use of computer in registration and checking	0.474
	Eigenvalue	1.378
	Percentage of variance	11.653
	Cumulative percentage of variance	49.339
4	Not enough consultation rooms	0.796
	Crowded waiting lounge	0.788
	Eigenvalue	1.069
	Percentage of variance	9.124
	Cumulative percentage of variance	58.463

Table XI.
Factor analysis on staff survey

	N	Mean	Std. deviation	Std. error mean
Lack of commitment	1,894	3.28	1.206	0.028
Lack of motivation	1,899	3.26	1.197	0.027
Lack of expertise	1,889	3.20	1.227	0.028
Lack of cooperation	1,900	3.35	1.235	0.028
Poor work attitude of colleagues	1,901	3.12	1.287	0.030
Inefficient work process	1,879	3.59	1.133	0.026

Table XII.
Mean for employee attitude and work process

employee attitude and work process. The finding indicates that the employees perceive inefficient work process to contribute towards lengthy waiting time (mean 3.59), followed by lack of cooperation among the staff (mean 3.35). Poor commitment among the employees (mean 3.28) was also perceived to be a contributory factor together with a lack of motivation (mean 3.26), lack of expertise in delivering work (mean 3.20), and poor work attitude among colleagues (mean 3.12). When all six items were collapsed into the factor "employee attitude and work process", the mean of this factor was found

to be 3.30, which indicates that the employees perceive this factor to contribute towards the waiting time problem.

Heavy workload

A further extracted factor from the analysis was heavy workload, which was perceived by the employees to have an influence on the length of patients' waiting time. Six items grouped neatly into this factor. The findings indicate that the employees strongly believe the lack of staff contributes towards lengthy waiting time (mean 4.53), followed by patients not adhering to appointment time (mean 4.16), and heavy workload (mean 4.09). Inability to trace patient cards was further perceived by the employees to aggravate the waiting time problem (mean 3.88), followed by the annoyance of patients who were required to complete numerous forms (mean 3.79) together with staff being asked to perform other non-related duties (mean 3.73). When all the six items were collapsed into a single variable, the aggregate mean was found to be 4.03. This indicates that the employees strongly agree that their heavy workload does have an influence on patients' waiting time problem (Table XIII).

Management and supervision problem

The third factor was management and supervision problem. The employees perceive problems such as doctors commencing clinics late (mean 3.86), slow response from management to solve problems (mean 3.47) and lack of supervision (mean 3.19) as contributing to the waiting time problem. The use of computers for registration and checking patient data was also perceived to add to the problem (mean 3.04). However, administrative matters such as staff having breaks at the same time were not seen as a major factor contributing to the problem by staff (mean 2.98) (Table XIV).

Inadequate facilities

The final extracted factor was inadequate facilities. Lack of consultation rooms was perceived to contribute to the waiting time problem (mean 3.81) as was crowded

	N	Mean	Std. deviation	Std. error mean
Lack of staff including doctors	1,901	4.53	0.724	0.017
Patients do not adhere to appointment time	1,885	4.16	0.902	0.021
Too many forms to be filled in	1,891	3.79	1.083	0.025
Heavy workload	1,881	4.09	1.016	0.023
Performing other non-related duties	1,888	3.73	1.128	0.026
Patient card could not be traced	1,876	3.88	1.073	0.025

Table XIII.
Mean for heavy workload

	N	Mean	Std. deviation	Std. error mean
Doctor starts clinic late	1,892	3.86	1.181	0.027
Management slow in solving problems	1,890	3.47	1.154	0.027
Lack of supervision	1,888	3.19	1.134	0.026
Staff having rest hour at the same time	1,890	2.98	1.269	0.029
Use of computer in registration and checking	1,887	3.04	1.214	0.028

Table XIV.
Management and supervision problems

waiting rooms (mean 3.56). When collapsed both factors inadequate facilities revealed a mean of 3.69 indicating that staff perceive the waiting time to be influenced by this factor (Table XV).

Employee perception on factors influencing waiting time

The aggregate mean of all the items were analysed according to the extracted factor with the findings revealing that employees strongly agree that their heavy workload influences the patients' waiting time problem (mean 4.03), followed by inadequate facilities (mean 3.69). Staff was also of the opinion that management and supervision problems add to the waiting time problem (mean 3.31), followed by employee attitude and work process (mean 3.30) (Table XVI).

The employee perception that heavy workload is a major influence on patient waiting time is not surprising given the incessant shortage of medical personnel in Malaysian public hospitals. The privatisation policy on healthcare services undertaken by the government since the 1980s has had disastrous consequences on the distribution of human resources within the country's healthcare industry. The large salary gap between the private and public hospitals led to the migration of trained health personnel from the public hospitals to the private hospitals. On average, about 300 doctors and specialists resign from government service on an annual basis (Lim, 2002). Almost 60 per cent of specialists in the country are serving in the private sector, which provides less than 30 per cent of the total hospital beds (Suleiman and Jegathesan, 2000). In total, in 2004 72 per cent of the posts of medical officers, 56 per cent of specialist posts and 57 per cent of pharmacists' posts were filled (MOH, 2004). The gross imbalance in distribution of human resources between the private and public hospitals is manifested in the heavier workload experienced by employees in public hospitals. Furthermore, given the fact that public hospital services are heavily subsidised by the government, the majority of patients attend public hospitals rather than the private hospitals, who service in the main the middle-income segment of the population. This has led to a situation of excess demand in the public hospitals, which in turn affects staff workload, and is exacerbated by shortage of staff, which has knock on consequences on excessive waiting time in the public hospitals. The ramification of this vicious cycle leads to stress on the existing hospital facilities, which is reflected in the finding of this study.

Table XV.
Mean for inadequate facilities

	N	Mean	Std. deviation	Std. error mean
Lack of consultation rooms	1,892	3.81	1.160	0.027
Waiting lounge is crowded	1,903	3.56	1.242	0.028

Table XVI.
Mean for employee perception on factors influencing waiting time

	N	Mean	Std. deviation	Std. error mean
Employee attitude and work process	1,826	3.3041	1.02071	0.02389
Heavy workload	1,801	4.0353	0.64392	0.01517
Management and supervision problems	1,823	3.3062	0.82749	0.01938
Inadequate facilities	1,882	3.6878	1.05102	0.02423

Discussion and conclusion

While waiting time is a global phenomenon that affects healthcare organisations throughout the world, in Malaysia there is still much to be done in order to reduce patient waiting time in public hospitals. Efforts made by the Ministry of Health to track waiting time at Malaysian public hospitals is a laudable move as this aspect of service can easily be overlooked for more pressing issues such as patient safety and prevention of medical error. The present study indicates that waiting time has not improved as the findings of an earlier study indicated that the average waiting time was found to be 59 minutes (IHM, 2006) given the findings of this study where the average waiting time is 64 minutes. While the earlier study had not sought the opinion of the employees on the contributory factors of lengthened waiting time, the current study added the internal customer dimension in order to understand the issues better. Heavy workload, low staff morale, and management and supervision problems are areas should be further studies to find the root cause of the problem.

The limitations to this study are that Malaysian public hospitals are entities of immense diversity with Hospital Kuala Lumpur being a multifaceted structure with over 2,000 beds offering in excess of 200 specialists to Hospital Alor Gajah which is a 29-bed district hospital without any medical specialists. Thus, the vast difference between the structure and operations of the respondent hospitals could have impacted the findings, as can be seen in the higher variance. Future research may therefore need to address issues specific to hospitals of similar structure and character.

The findings of this study indicate that for a patient to see a doctor for about ten minutes, he or she has to wait for about an hour, followed by another hour of waiting to get his or her medicine. If we take into account the traveling time to and from the hospital, getting access to healthcare within the Malaysian public healthcare system can actually be a daunting task. However, measures taken by the hospitals to reduce patient boredom are a move in the right direction, within the constraints of the public healthcare delivery system. As it is, public healthcare in Malaysia is in a state of excess demand, where demand for subsidised healthcare far outstrips supply, given the fact that public healthcare in the country is almost free at the point of delivery. Further the large fee differential between public and private healthcare also contributes to the unbalanced demand. Although the constraints are sometimes beyond the control of healthcare managers, nonetheless, employee perception on factors that contribute to waiting time problems cannot be ignored altogether. Attitude and supervision problems can be addressed at an organisational level, although inadequate facilities and heavy workload may need the involvement of the policy-makers. The need to address the issue in a more scientific manner as has been seen in other countries through simulation and modeling techniques is also a step in the right direction.

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